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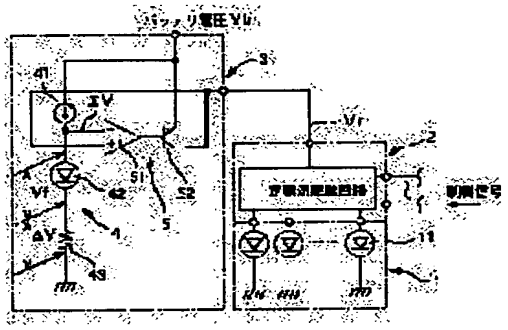
(54) POWER UNIT FOR LIGHT EMISSIVE DISPLAY

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a power unit for a light emissive display, achieving a reduction in temperature of a contact current drive circuit for drivingly controlling the light emissive display, while avoiding the improvement of a heat radiation system and decreases in light emissive functions.
SOLUTION: A constant current drive circuit 2 arranged in proximity to a light emissive display 1 drives the light emissive display 1 at a constant current to inhibit the fluctuation of the brightness thereof. A power circuit 3 adjusts, according to the drop of voltage of the light emissive display 1, a source voltage applied to the constant current drive circuit 2. Therefore, heating of the constant current drive circuit 2 for driving the light emissive display 1 at the constant current can be reduced, particularly when the drop of voltage of the light emissive display 1 is small, without further improvements of a heat radiation system around the light emissive display 1 which are not easy because of space and structural limitations and without limitations on the light emissive functions of the light emissive display 1.



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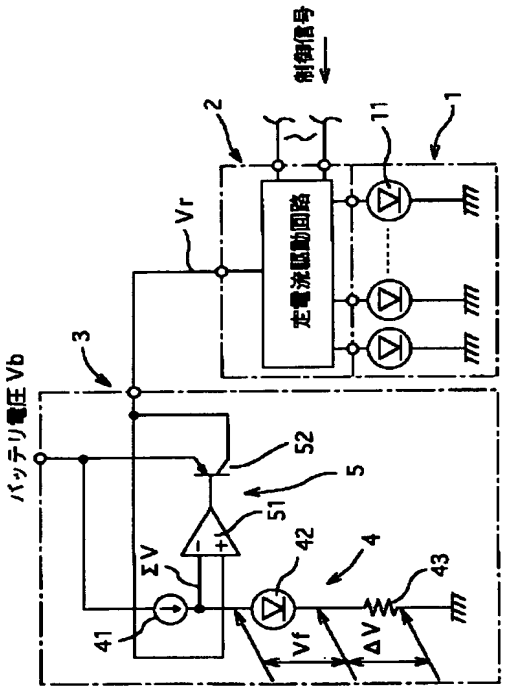
(54)【発明の名称】　発光ディスプレイ用電源装置

(57)【要約】
【課題】放熱系の改良や発光機能の低下を回避しつつ、発光ディスプレイ駆動制御用の定電流駆動回路の温度低減を実現した発光ディスプレイ用電源装置を提供すること。
【解決手段】発光ディスプレイ１に近接配置された定電流駆動回路２が発光ディスプレイ１を定電流駆動してその輝度変動を抑止する。電源回路３はこの定電流駆動回路２に印加する電源電圧を発光ディスプレイ１の電圧降下量に応じて調節する。これにより、スペース上及び構造上容易ではない発光ディスプレイ１周りの放熱系の更なる改良を図ることなく、発光ディスプレイ１の発光機能に制限を加えることなく、発光ディスプレイ１の定電流駆動用の定電流駆動回路２の発熱低減、特に、発光ディスプレイ１の電圧降下量が小さい場合における定電流駆動回路２の発熱低減を実現することができる。



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【特許請求の範囲】

【請求項１】前記発光ディスプレイを定電流駆動する定電流駆動回路と、

前記発光ディスプレイの電圧降下量に正の相関を有する信号電圧を発生する電圧降下量検出回路と、

前記信号電圧に正の相関を有する電源電圧を前記定電流駆動回路に印加する電源電圧発生回路とを備えることを特徴とする発光ディスプレイ用電源装置。

【請求項２】請求項１記載の発光ディスプレイ用電源装置において、

前記電圧降下量検出回路は、前記発光ディスプレイに設けられたモニタ用発光素子と、前記モニタ用発光素子に定電流を給電する定電流源と、前記モニタ用発光素子の電圧降下量に所定の電圧値を加算して前記信号電圧とする電圧加算回路部とを有することを特徴とする発光ディスプレイ用電源装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、たとえば有機ＥＬディスプレイなどの発光ディスプレイを駆動する電源装置に関する。

【０００２】

【従来の技術】特開平２－１４８６８７号公報及び特開平７－６５９５３号公報は、有機ＥＬディスプレイを定電流駆動することにより輝度変化を抑止することを記載している。すなわち、上述した有機ＥＬディスプレイの定電流駆動によれば、経時変化、温度変化、製造ばらつきなどに起因するその順方向バイアス電圧Ｖｆの変動にもかかわらず一定電流を通電することができるので、ディスプレイの輝度変化を大幅に低減することができる。

【０００３】

【発明が解決しようとする課題】しかしながら、上記した定電流駆動式有機ＥＬディスプレイ装置では、有機ＥＬディスプレイの順方向バイアス電圧Ｖｆが小さい場合には、定電流駆動回路の電力損失増大によりその発熱量が増加して定電流駆動回路が高温となるという問題があった。

【０００４】もちろん、この定電流駆動回路を装置の冷却しやすい部位に設けたり、特別の冷却手段を施したりすることも考えられるが、発光ディスプレイでは、その構成要素をなす多数のピクセルすなわち発光素子を個別に駆動する必要があるために定電流駆動回路はできるだけ発光ディスプレイに近接させて設ける必要がある。すなわち、定電流駆動回路と発光ディスプレイとを接続する配線が長いと、配線抵抗及び寄生容量の増大により、電力ロスの増大及びレスポンス低下のために定電流駆動回路の出力を増加させる必要があり、また配線規模が大きいケーブルの引き回しが必要となる。

【０００５】しかし、このように定電流駆動回路を発光ディスプレイに近接配置する場合、高温となった定電流

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駆動回路の熱が発光ディスプレイの発光特性に影響するという問題があった。また、発光ディスプレイに対する定電流駆動回路の熱的影響を防止するために定電流駆動回路を発光ディスプレイから離れた位置に設ける場合でも、このように多数の出力端子を必要とする発光ディスプレイ駆動制御用の定電流駆動回路とケーブルとの接続を簡素化するためには、フレキシブル基板に定電流駆動回路ＩＣまたはベアチップを実装して樹脂モールドしたり、更には発光ディスプレイが実装される透明基板に定電流駆動回路を直接実装乃至集積することが行われるが、これらの場合、定電流駆動回路チップは樹脂で囲包されるので特に難しくなるという問題があった。

【０００６】更にまとめて言えば、発光ディスプレイ駆動用の定電流駆動回路は多数の配線を有するケーブルを通じて発光ディスプレイ近傍あるいはこのケーブルの引き回しや接続に起因して放熱上不利な構造や位置取りを余儀なくされる場合があり、このため、この定電流駆動回路の温度低減が発光ディスプレイ実装上の大きな問題となっていた。

【０００７】特に、車両室内など高温となる場合がある使用環境で用いようとする場合には、定電流駆動回路の温度上昇により、発光ディスプレイの性能を十分に発揮できないという弊害が予想される。本発明は上記問題点に鑑みなされたものであり、放熱系の改良や発光機能の低下を回避しつつ、発光ディスプレイ駆動制御用の定電流駆動回路の温度低減を実現した発光ディスプレイ用電源装置を提供することをその解決すべき課題としている。

【０００８】

【課題を解決するための手段】本発明の発光ディスプレイ用電源装置によれば、発光ディスプレイに近接配置された定電流駆動回路が発光ディスプレイを定電流駆動してその輝度変動を抑止する。本発明によれば特に、この定電流駆動回路に印加する電源電圧を発光ディスプレイの電圧降下量に応じて調節するので、スペース上及び構造上容易ではない発光ディスプレイ周りの放熱系の更なる改良を図ることなく、発光ディスプレイの発光機能に制限を加えることなく、発光ディスプレイ定電流駆動用の定電流駆動回路の発熱低減、特に、発光ディスプレイの電圧降下量が小さい場合における定電流駆動回路の発熱低減を実現することができる。

【０００９】以下、更に詳しく説明する。本構成では、定電流駆動回路が発光ディスプレイ（正確にはその発光素子）を定電流駆動する場合、発光ディスプレイの順方向バイアス電圧Ｖｆが小さい場合にはその電圧降下量が小さくなり、上述した各種要因によりその順方向バイアス電圧Ｖｆを含むそのインピーダンスが増大すればそれに応じて電圧降下量は増大する。

【００１０】そこで、本構成では、定電流駆動される発光ディスプレイの電圧降下量が小さい場合には定電流駆

動回路に印加する電源電圧を低下し、電圧降下量が大きい場合には定電流駆動回路に印加する電源電圧を増大させ、これにより発光ディスプレイの電圧降下量が小さい場合における定電流駆動回路の電圧降下の増大を減らして、その電力消費が所定レベルを超えるのを防止することができ、その結果として、放熱系の改良や発光機能の低下を回避しつつ、発光ディスプレイ駆動制御用の定電流駆動回路の温度低減を実現した発光ディスプレイ用電源装置を提供することができる。

【００１１】請求項２記載の構成によれば請求項１記載の発光ディスプレイ用電源装置において更に、発光ディスプレイに設けられたモニタ用発光素子に定電流を給電してその電圧降下量を求め、求めた電圧降下量に所定の電圧値を加算して信号電圧を形成し、この信号電圧に正の相関を有する電源電圧を形成する。このようにすれば、回路規模をいたずらに増大することなく、発光ディスプレイの電圧降下量の変動に良好に追従する電源電圧（定電流駆動回路印加電圧）を作成することができる。

【００１２】

【発明を実施するための態様】以下、本発明の好適な態様を以下の実施例を参照して具体的に説明する。

【００１３】

【実施例１】本発明の発光ディスプレイ用電源装置の第一実施例を図１を参照して以下に説明する。１はそれぞれ直流駆動される６４０×４８０個の発光素子１１を有するドットの有機ＥＬディスプレイ（発光ディスプレイ）であり、フレキシブル基板（図示せず）によりそれをＸ－Ｙマトリックス駆動する定電流駆動回路２に接続されている。定電流駆動回路２はこのフレキシブル基板上にはんだボールなどを用いて直接表面実装された後、樹脂モールドされている。

【００１４】定電流駆動回路２は、入力される制御信号の値に応じて有機ＥＬディスプレイの各行配線や列配線をそれぞれ定電流駆動する多数の行配線駆動制御用又は列配線駆動制御用の定電流ドライバ回路からなるが、この定電流駆動回路自体の構成は本発明の主旨ではなく、かつ、周知の回路構成であるので、詳細な回路及び動作説明は省略する。

【００１５】３は、定電流駆動回路２に電源電圧Ｖｒを印加する電源回路であって、発光ディスプレイ１の電圧降下量（順方向バイアス電圧）Ｖｆに正の相関を有する信号電圧Ｖｓを発生する電圧降下量検出回路４と、信号電圧Ｖｓに正の相関を有する電源電圧Ｖｒを定電流駆動回路２に印加する電源電圧発生回路５とからなる。電圧降下量検出回路４は、バッテリ電圧Ｖｂが印加される定電流源４１、モニタ用発光素子４２及び抵抗４３を直列接続してなり、定電流源４１は所定の定電流ｉｃをモニタ用発光素子４２及び抵抗４３に供給している。したがって、モニタ用発光素子４２及び抵抗４３の合成電圧降下量ΣＶは、Ｖｆ＋ｒ・ｉｃとなる。ｒは抵抗４３の抵抗値である。言い換えると、合成電圧降下量ΣＶはモニタ用発光素子４２の電圧降下量Ｖｆより常に一定値ΔＶ＝ｒ・ｉｃだけ大きくなるように設定されている。なお、モニタ用発光素子４２は発光ディスプレイ１に上記６４０×４８０の発光素子１１に隣接して各発光素子１１と等しい大きさに形成されている。

【００１６】電源電圧発生回路５は、オペアンプ５１とｐｎｐエミッタ接地トランジスタ５２とからなり、オペアンプ５１は上記合成電圧降下量ΣＶ＝Ｖｆ＋ΔＶと電源電圧Ｖｒとの差電圧をｐｎｐエミッタ接地トランジスタ５２のベース電極に印加し、ｐｎｐエミッタ接地トランジスタ５２は上記差電圧によりバッテリから定電流源４１への給電をフィードバック制御し、これにより定電流源４１に印加される電源電圧ＶｒはΣＶ＝Ｖｆ＋ΔＶに常に等しく調整される。

【００１７】結局、この実施例によれば、定電流駆動回路２の電力ロスＰはその出力電流をＩとすれば、Ｉ×ΔＶ＝Ｉ×ｒ・ｉｃとなって、発光素子１１の電圧降下量Ｖｆに正相関を有してたとえば温度変化乃至経時変化するモニタ用発光素子４２の電圧降下量に無関係となり、したがって、発光ディスプレイ用電源装置１の電圧降下量Ｖｆが小さくても定電流駆動回路２の電力ロスが増大して、高温となることがない。

【００１８】

【実施例２】本発明の発光ディスプレイ用電源装置の他の実施例を図２を参照して説明する。この実施例の装置は、実施例１の装置に比較して電源回路の構成だけが異なるので、その電源回路６だけを以下に説明する。

【００１９】この電源回路６は、電圧降下量検出回路７と電源電圧発生回路８とからなる。電圧降下量検出回路７は、ベース抵抗７０、エミッタホロワトランジスタ７１、定電圧ダイオード７２、モニタ用発光素子４２、及び、このモニタ用発光素子４２に定電流給電する定電流ドライバ回路２０からなる。定電流ドライバ回路２０は、有機ＥＬディスプレイ１の各行配線や列配線をそれぞれ定電流駆動する多数の行配線駆動制御用又は列配線駆動制御用の定電流ドライバ回路２１～２ｘと同一形状に定電流駆動回路２に形成されてモニタ用発光素子４２に給電している。

【００２０】抵抗７１と定電圧ダイオード７２との接続点には、モニタ用発光素子４２の電圧降下量Ｖｆと定電圧ダイオード７２の電圧降下量ΔＶとの合成電圧降下量ΣＶが印加され、これがダーリントン接続エミッタホロワトランジスタからなる電源電圧発生回路８に印加され、その結果、この実施例の電源回路６は、合成電圧降下量ΣＶから電源電圧発生回路８のほぼ一定である順方向エミッタ・ベース間電圧降下量を差し引いた値に等しい電源電圧Ｖｒを定電流駆動回路２に印加する。

【００２１】したがって、実施例２によっても実施例１と同様の作用効果を奏することができる。

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【００２２】

【変形態様】上記実施例では、電源電圧Ｖｒを発光素子１１の推定電圧降下量とみなす電圧降下量Ｖｆに一定値ΔＶを加えた値としたが、一定値ΔＶの代わりに、電圧降下量Ｖｆの所定倍とするなど、適宜変更してもよいことはもちろんである。

【図面の簡単な説明】

【図１】本発明の発光ディスプレイ用電源装置の一実施例を示す回路図である。

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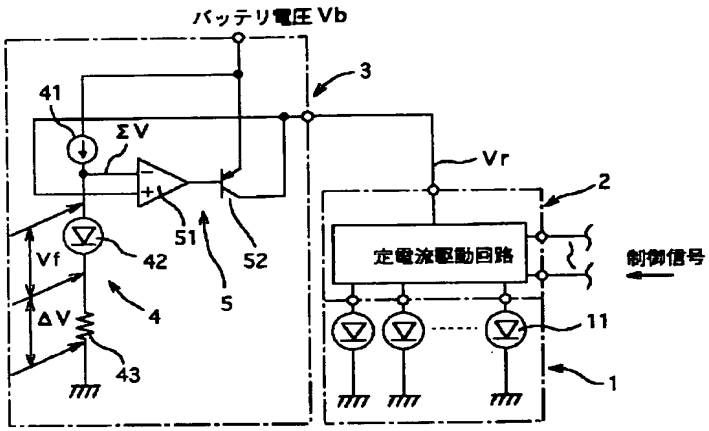
【図２】本発明の発光ディスプレイ用電源装置の他実施例を示す回路図である。

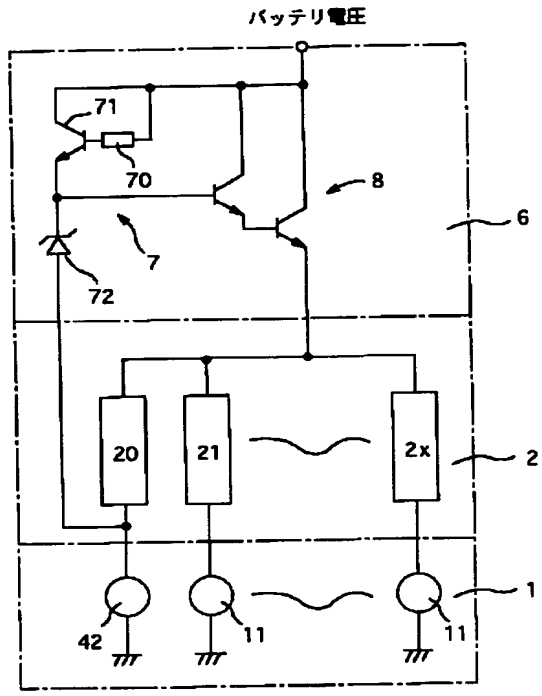
【符号の説明】

１は有機ＥＬディスプレイ（発光ディスプレイ）、２は定電流駆動回路、４、７は電圧降下量検出回路、５、８は電源電圧発生回路、４２はモニタ用発光素子、４１は定電流源、４３は抵抗（電圧加算回路部）、７２は定電圧ダイオード（電圧加算回路部）。

【図１】



【図２】



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* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
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CLAIMS

[Claim(s)]
[Claim 1] The power unit for a luminescence display characterized by having the constant current actuation circuit which carries out constant current actuation of said luminescence display, the amount detector of voltage drops which generates the signal level which has forward correlation in the amount of voltage drops of said luminescence display, and the supply voltage generating circuit which impresses the supply voltage which has forward correlation in said signal level to said constant current actuation circuit.
[Claim 2] It is the power unit for a luminescence display characterized by having the constant current source which supplies electric power to the light emitting device for monitors by which said amount detector of voltage drops was established in said luminescence display in the power unit for a luminescence display according to claim 1, and said light emitting device for monitors in constant current, and the electrical-potential-difference adder-circuit section which adds a predetermined electrical-potential-difference value to the amount of voltage drops of said light emitting device for monitors, and is made into said signal level.

[Translation done.]

* NOTICES *

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the power unit which drives luminescence displays, such as an organic electroluminescence display.
[0002]
[Description of the Prior Art] JP,2-148687,A and JP,7-65953,A have indicated inhibiting brightness change by carrying out constant current actuation of the organic electroluminescence display. That is, since a fixed current can be energized in spite of fluctuation of the forward-bias electrical potential difference Vf resulting from aging, a temperature change, manufacture dispersion, etc. according to the constant current actuation of an organic electroluminescence display mentioned above, brightness change of a display can be reduced substantially.
[0003]
[Problem(s) to be Solved by the Invention] However, with the above-mentioned constant current actuation type organic electroluminescence display equipment, when the forward-bias electrical potential difference Vf of an organic electroluminescence display was small, there was a problem that the calorific value increased according to power loss buildup of a constant current actuation circuit, and a constant current actuation circuit served as an elevated temperature.
[0004] Of course, although establishing this constant current actuation circuit in the part which equipment tends to cool, or giving a special cooling means is also considered, since it is necessary to drive according to an individual, the pixel, i.e., the light emitting device, of a large number which make that component, it is necessary to make a constant current actuation circuit approach a luminescence display as much as possible, and to prepare it on a luminescence display. That is, when wiring which connects a constant current actuation circuit and a luminescence display is long, it is necessary to make the output of a constant current actuation circuit increase for buildup of a power loss, and response lowering and, and leading about of a cable with large wiring magnitude is needed with wiring resistance and buildup of parasitic capacitance.
[0005] However, when contiguity arrangement of the constant current actuation circuit was carried out in this way at a luminescence display, there was a problem that the heat of the constant current actuation circuit used as an elevated temperature influenced the luminescence property of a luminescence display. moreover, in order to prevent the thermal effect of a constant current actuation circuit to a luminescence display, even when establishing a constant current actuation circuit in the location distant from the luminescence display thus, in order to simplify connection with the constant current actuation circuit for luminescence display actuation control and cable which need many output terminals Although the resin mould of the constant current actuation circuit IC or the bare chip is mounted and carried out to a flexible substrate or direct-mounting, thru/or accumulating a constant current actuation circuit on the transparence substrate with which a luminescence display is mounted further is performed Since the constant current actuation circuit chip was ****(ed) by resin in these cases, there was a problem of becoming difficult especially.

[0006] Furthermore, when saying collectively, the constant current actuation circuit for luminescence display actuation originated in leading about and connection of this cable near the luminescence display through the cable which has much wiring, and may be obliged to disadvantageous structure and disadvantageous reference by location on heat dissipation, and, for this reason, temperature reduction of this constant current actuation circuit had become with the big problem on luminescence display mounting in it.
[0007] When it is going to use by the operating environment which may serve as elevated temperatures, such as the car interior of a room, especially, the evil in which the engine performance of a luminescence display cannot fully be demonstrated is expected by the temperature rise of a constant current actuation circuit. It is carrying out offering the power unit for a luminescence display which realized temperature reduction of the constant current actuation circuit for luminescence display actuation control as the technical problem which should be solved, this invention being made in view of the above-mentioned trouble, and avoiding amelioration of a heat dissipation system, and lowering of a luminescence function.
[0008]
[Means for Solving the Problem] According to the power unit for a luminescence display of this invention, the constant current actuation circuit by which contiguity arrangement was carried out at the luminescence display carries out constant current actuation of the luminescence display, and inhibits the brightness fluctuation. Exoergic reduction of the constant-current actuation circuit for luminescence display constant-current actuation and the exoergic reduction of a constant-current actuation circuit when the amount of a luminescence display of voltage drops is small especially can realize without adding a limit to the luminescence function of a luminescence display, without planning the further amelioration of the heat-dissipation system of the circumference of the luminescence display which is not easy on a tooth space and structure, since the supply voltage impress to this constant-current actuation circuit especially adjusts according to the amount of a luminescence display of voltage drops according to this invention.
[0009] Hereafter, it explains in more detail. With this configuration, when a constant current actuation circuit carries out constant current actuation of the luminescence display (accuracy the light emitting device), if the impedance which the amount of voltage drops becomes small, and contains the forward-bias electrical potential difference Vf according to the various factors mentioned above increases when the forward-bias electrical potential difference Vf of a luminescence display is small, the amount of voltage drops will increase according to it.
[0010] Then, the supply voltage impressed to a constant current actuation circuit with this configuration when the amount of voltage drops of the luminescence display by which constant current actuation is carried out is small is fallen. When the amount of voltage drops is large, increase the supply voltage impressed to a constant current actuation circuit, and this reduces buildup of the voltage drop of a constant current actuation circuit when the amount of voltage drops of a luminescence display is small. It can prevent that the power consumption exceeds predetermined level, and the power unit for a luminescence display which realized temperature reduction of the constant current actuation circuit for luminescence display actuation control can be offered as the result, avoiding amelioration of a heat dissipation system, and lowering of a luminescence function.
[0011] According to the configuration according to claim 2, in the power unit for a luminescence display according to claim 1, further, electric power is supplied to the light emitting device for monitors prepared in the luminescence display in constant current, and a predetermined electrical-potential-difference value is added to the amount of voltage drops which calculated and calculated that amount of voltage drops, a signal level is formed, and the supply voltage which has forward correlation in this signal level is formed. If it does in this way, the supply voltage (constant current actuation circuit applied voltage) which follows circuit magnitude good at fluctuation of the amount of voltage drops of a luminescence display, without increasing in vain can be created.
[0012]
[The mode for inventing] Hereafter, the suitable mode of this invention is concretely explained with

reference to the following examples.
[0013]
[Example 1] The first example of the power unit for a luminescence display of this invention is explained below with reference to drawing 1 . 1 is the organic electroluminescence display (luminescence display) of the dot which has 640x480 light emitting devices 11 by which direct-current actuation is carried out, respectively, and is connected to the constant current actuation circuit 2 which carries out X-Y-matrix actuation of it with a flexible substrate (not shown). After using a solder ball etc. and carrying out a direct surface mount on this flexible substrate, the resin mould of the constant current actuation circuit 2 is carried out.
[0014] Although the constant current actuation circuit 2 consists of an object for line wiring actuation control of a large number which carry out constant current actuation of each line wiring and train wiring of an organic electroluminescence display according to the value of the control signal inputted, respectively, or a constant current driver circuit for train wiring actuation control, the configuration of this constant current actuation circuit itself is not the main point of this invention, and since it is well-known circuitry, a detailed circuit and explanation of operation omit.
[0015] 3 is a power circuit which impresses supply voltage Vr to the constant current actuation circuit 2, and consists of an amount detector 4 of voltage drops which generates the signal level Vs which has forward correlation in the amount Vf of voltage drops of the luminescence display 1 (forward-bias electrical potential difference), and a supply voltage generating circuit 5 which impresses the supply voltage Vr which has forward correlation in a signal level Vs to the constant current actuation circuit 2. The amount detector 4 of voltage drops comes to carry out the series connection of the constant current source 41, the light emitting device 42 for monitors, and resistance 43 to which battery voltage Vb is impressed, and the constant current source 41 supplies predetermined constant current ic to the light emitting device 42 for monitors, and resistance 43. Therefore, the light emitting device 42 for monitors and amount of synthetic voltage drops sigmaV of resistance 43 become Vf+r-ic. r is the resistance of resistance 43. In other words, amount of synthetic voltage drops sigmaV is set up so that only constant value delta V=r-ic may always become large from the amount Vf of voltage drops of the light emitting device 42 for monitors. In addition, the light emitting device 42 for monitors adjoins the luminescence display 1 at the light emitting device 11 of the above 640x480, and is formed in magnitude equal to each light emitting device 11.
[0016] The supply voltage generating circuit 5 consists of an operational amplifier 51 and a pnp grounded emitter transistor 52, an operational amplifier 51 impresses the difference electrical potential difference of the above-mentioned amount of synthetic voltage drops sigma V=Vf+delta V, and supply voltage Vr to the base electrode of the pnp grounded emitter transistor 52, the pnp grounded emitter transistor 52 carries out feedback control of the feed to a constant current source 41 from a dc-battery with the above-mentioned difference electrical potential difference, and the supply voltage Vr impressed to a constant current source 41 by this is adjusted always equally to sigma V=Vf+delta V.
[0017] After all, according to this example, the power loss P of the constant current actuation circuit 2 serves as I, then Ixdelta V=Ixr-ic in that output current, and has positive correlation in the amount Vf of voltage drops of a light emitting device 11, for example, becomes unrelated to a temperature change thru/or the amount of voltage drops of the light emitting device 42 for monitors which carries out aging, therefore even if the amount Vf of voltage drops of the power unit 1 for a luminescence display is small, the power loss of the constant current actuation circuit 2 increases, and it does not serve as an elevated temperature.
[0018]
[Example 2] Other examples of the power unit for a luminescence display of this invention are explained with reference to drawing 2 . Since only the configurations of a power circuit differ as compared with the equipment of an example 1, the equipment of this example explains only that power circuit 6 below.
[0019] This power circuit 6 consists of an amount detector 7 of voltage drops, and a supply voltage generating circuit 8. The amount detector 7 of voltage drops becomes base resistance 70, the emitter follower transistor 71, reference diode 72, the light emitting device 42 for monitors, and this light

emitting device 42 for monitors from the constant current driver circuit 20 which carries out constant current feed. The constant current driver circuit 20 is formed in the constant current actuation circuit 2 at the same configuration as many objects for line wiring actuation control or the constant current driver circuits 21-2x for train wiring actuation control which carry out constant current actuation of each line wiring and train wiring of an organic electroluminescence display 1, respectively, and is supplying electric power to the light emitting device 42 for monitors.

[0020] At the node of resistance 71 and reference diode 72 Amount of synthetic voltage drops sigmaV of the amount Vf of voltage drops of the light emitting device 42 for monitors and amount of voltage drops deltaV of reference diode 72 is impressed. It is impressed by the supply voltage generating circuit 8 where this consists of a Darlington connection emitter follower transistor. Consequently, the power circuit 6 of this example The supply voltage Vr equal to the value which deducted the almost fixed amount of voltage drops between the forward direction emitter bases of the supply voltage generating circuit 8 from amount of synthetic voltage drops sigmaV is impressed to the constant current actuation circuit 2.

[0021] Therefore, the same operation effectiveness as an example 1 can be done so also according to an example 2.

[0022]

[Deformation mode] Although considered as the value which added constant value deltaV to the amount Vf of voltage drops which considers that supply voltage Vr is the amount of presumed voltage drops of a light emitting device 11 in the above-mentioned example, as for your changing suitably, it is needless to say that it is made into twice [predetermined] the amount Vf of voltage drops etc. instead of constant value deltaV.

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the circuit diagram showing one example of the power unit for a luminescence display of this invention.
[Drawing 2] It is the circuit diagram showing the other examples of the power unit for a luminescence display of this invention.
[Description of Notations]
1 -- an organic electroluminescence display (luminescence display) and 2 -- a constant current drive circuit, and 4 and 7 -- the amount detector of voltage drops, and 5 and 8 -- a supply voltage generating circuit and 42 -- the light emitting device for monitors, and 41 -- a constant current source and 43 -- resistance (electrical-potential-difference adder-circuit section) and 72 -- reference diode (electrical-potential-difference adder-circuit section).

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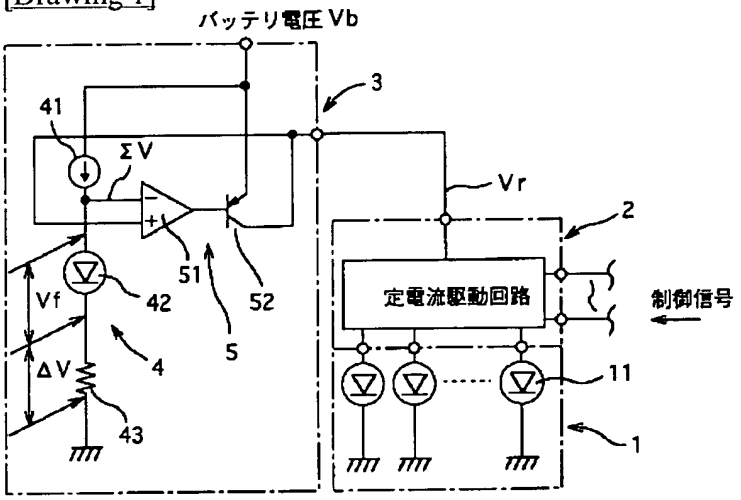
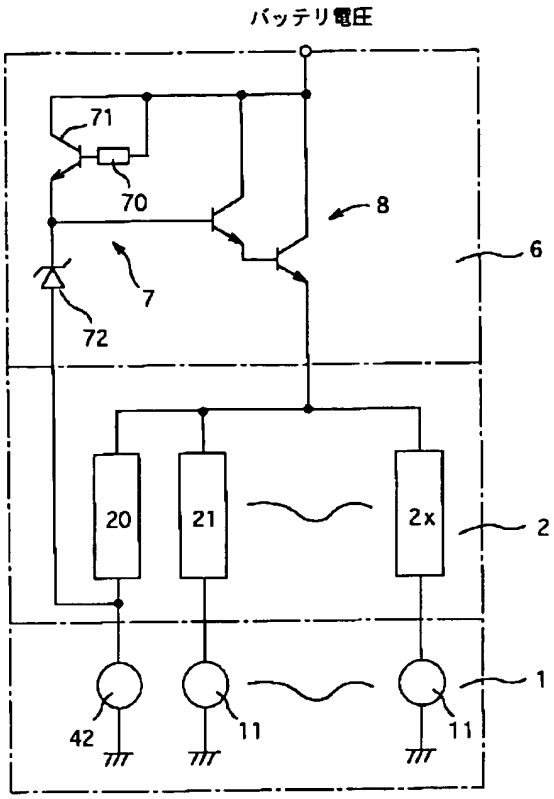
DRAWINGS

[Drawing 1]



[Drawing 2]



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